CLAIMS

What is claimed is:

1. A system for receiving a communication signal comprising:

an antenna configured to receive the communication signal at a frequency;

a stabilizing system configured to generate a stable timing signal;

a converting system configured to convert the communication signal from the frequency to a stable lower frequency using the stable timing signal, to convert the lower frequency signal to an optical signal, and to transmit the optical signal; and

an optical receiving system configured to receive the optical signal.

2. The system of claim 1 wherein the stabilizing system comprises:

a timing source configured to generate the stable timing signal; and

a stabilized local oscillator configured to receive the stable timing signal and to use the stable timing signal as an input to generate a stabilized oscillator signal.

3. The system of claim 1 wherein the converting system comprises:

a block converter configured to use a stabilized oscillator signal to convert the frequency of the signal to the stable lower frequency.

4. The system of claim 1 wherein the converting system comprises:

a fiber optic transmitter configured to convert the lower frequency signal to an optical signal and to transmit the optical signal over fiber optic cable.

5. The system of claim 1 wherein the receiving system comprises:

a fiber optic receiver configured to receive the optical signal over fiber optic cable.

6. The system of claim 1 wherein the stable timing signal comprises a global positioning system timing signal.

7. A system for receiving a communication signal comprising:

an antenna configured to receive the communication signal at a frequency;

a stabilizing system configured to generate a stable timing signal; and

a converting system configured to convert the communication signal from the frequency to a stable lower frequency using the stable timing signal.

8. The system of claim 7 wherein the stabilizing system comprises:

a timing source configured to generate the stable timing signal; and

a stabilized local oscillator configured to receive the stable timing signal and to use the stable timing signal as an input to generate a stabilized oscillator signal.

9. The system of claim 8 wherein the converting system comprises:

a block converter configured to use the stabilized oscillator signal to convert the frequency of the communication signal to the stable lower frequency.

10. The system of claim 7 wherein the stable timing signal comprises a global positioning system timing signal.

11. A system for receiving a multipoint multichannel distribution service based communication signal comprising:

fiber optic cable;

an antenna configured to receive the communication signal;

a converting system configured to convert the communication signal to an optical signal and to transmit the optical signal over the fiber optic cable; and

an optical receiving system configured to receive the communication optical signal over the fiber optic cable.

12. The system of claim 11 wherein the converting system comprises:

a fiber optic transmitter configured to convert the communication signal to the optical signal and to transmit the optical signal over the fiber optic cable.

13. The system of claim 11 wherein the receiving system comprises:

a fiber optic receiver configured to receive the optical signal over the fiber optic cable.

14. A system for receiving a communication signal having a frequency comprising:

a timing source configured to generate a stable timing signal;

a stabilized local oscillator configured to receive the stable timing signal and to use the stable timing signal as an input to generate a stabilized oscillator signal;

an antenna configured to receive the communication signal;

a block converter configured to use the stabilized oscillator signal to convert the frequency of the communication signal to a stable lower frequency;

a fiber optic transmitter configured to convert the lower frequency communication signal to an optical signal and to transmit the optical signal over fiber optic cable; and

a fiber optic receiver configured to receive the optical signal over the fiber optic cable.

15. The system of claim 14 further comprising a filter configured to filter at least one member of a group comprising emissions and another communication signal.

16. The system of claim 14 further comprising an amplifier configured to amplify the communication signal.

17. The system of claim 14 further comprising an electrical converter configured to convert the optical signal to an electrical signal.

18. The system of claim 14 further comprising an inserter configured to insert the stable timing signal on a transmission medium configured to carry the stable timing signal to the stabilized local oscillator.

19. The system of claim 14 further comprising a transformer configured to transform power from a first level to a second level.

20. The system of claim 19 further comprising an inserter configured to receive power at the second level from the transformer and to insert the power on a transmission medium.

21. The system of claim 14 further comprising a distributor configured to receive power over a transmission medium and to distribute the power to at least one member of a group comprising the block converter, the fiber optic transmitter, and the stabilized local oscillator.

22. The system of claim 14 further comprising an external receiver configured to receive external timing signals from an external timing source and to generate the external timing signals to the timing source.

23. The system of claim 14 further comprising a suppressor configured to suppress electrical interference for the system.

24. The system of claim 14 wherein the stable timing source comprises a global positioning system timing source.

25. The system of claim 14 wherein the stable timing signal comprises a global positioning system timing signal.

26. The system of claim 14 wherein the fiber optic transmitter is located approximately at an upper portion of a tower and the fiber optic receiver is located approximately at a base of the tower.

27. The system of claim 14 wherein the stable timing source is located approximately at an upper portion of a tower.

28. The system of claim 14 wherein the stable timing source is located approximately at a base of a tower.

29. The system of claim 14 wherein the stable timing signal comprises approximately a ten megahertz global positioning system timing pulse.

30. The system of claim 14 wherein the communication signal comprises a multipoint multichannel distribution service based communication signal.

31. The system of claim 14 wherein the frequency of the communication signal comprises a high frequency and the stable lower frequency comprises an intermediate frequency.

32. The system of claim 14 wherein the frequency of the communication signal comprises approximately between 2.15-2.17 gigahertz.

33. The system of claim 14 further comprising:

a redundant block converter configured to use the stabilized oscillator signal to convert the frequency of the communication signal to another stable lower frequency;

a redundant fiber optic transmitter configured to convert the other lower frequency communication signal to another optical signal and to transmit the other optical signal over another fiber optic cable; and

a redundant fiber optic receiver configured to receive the other optical signal over the other fiber optic cable.

34. The system of claim 33 further comprising a selector configured to select for receiving the optical signal or the other optical signal.

35. A system for receiving a communication signal having a frequency comprising:

a timing source configured to generate a stable timing signal;

a stabilized local oscillator configured to receive the stable timing signal and to use the stable timing signal as an input to generate a stabilized oscillator signal;

an antenna configured to receive the communication signal; and

a block converter configured to use the stabilized oscillator signal to convert the frequency of the communication signal to a stable intermediate frequency.

36. The system of claim 35 further comprising a fiber optic transmitter configured to convert the intermediate frequency communication signal to an optical signal and to transmit the optical signal over fiber optic cable.

37. The system of claim 36 further comprising a fiber optic receiver configured to receive the optical signal over the fiber optic cable.

38. The system of claim 35 further comprising an amplifier configured to amplify the communication signal.

39. The system of claim 35 wherein the stable timing signal comprises a global positioning system based timing signal.

40. The system of claim 35 wherein the frequency of the communication signal comprises a high frequency.

41. A system for receiving a multipoint multichannel distribution service based communication signal having a frequency comprising:

an antenna configured to receive the communication signal;

a fiber optic transmitter configured to convert the communication signal to an optical signal and to transmit the optical signal over fiber optic cable; and

a fiber optic receiver configured to receive the optical signal over the fiber optic cable.

42. The system of claim 41 further comprising:

a timing source configured to generate a stable timing signal;

a stabilized local oscillator configured to receive the stable timing signal and to use the stable timing signal as an input to generate a stabilized oscillator signal; and

a block converter configured to use the stabilized oscillator signal to convert the frequency of the communication signal to a stable lower frequency before the communication signal is converted to the optical signal.

43. The system of claim 42 wherein the stable timing signal comprises a global positioning based system timing signal.

44. The system of claim 42 further comprising an amplifier configured to amplify the communication signal.

45. A method for receiving a communication signal having a receiving frequency comprising:

generating a stable timing signal;

using the stable timing signal as an input to a local oscillator to generate a stabilized oscillator signal;

receiving the communication signal;

using the stabilized oscillator signal to convert the receiving frequency of the communication signal to a stable lower frequency;

converting the lower frequency signal to an optical signal and transmitting the optical signal over fiber optic cable; and

receiving the optical signal over the fiber optic cable.

46. The method of claim 45 further comprising filtering at least one member of a group comprising emissions and another communication signal.

47. The method of claim 45 further comprising amplifying the communication signal.

48. The method of claim 45 further comprising converting the optical signal to an electrical signal after receiving the optical signal over the fiber optic cable.

49. The method of claim 45 further comprising inserting the stable timing signal on a transmission medium configured to carry the stable timing signal to a local oscillator.

50. The method of claim 45 further comprising receiving external timing signals from an external timing source and using the external timing signals to generate the stable timing signal.

51. The method of claim 45 wherein the stable timing signal comprises a global positioning system based timing signal.

52. The method of claim 45 wherein the optical signal is transmitted approximately from an upper portion of a tower and the optical signal is received approximately at a base of the tower.

53. The method of claim 45 wherein the stable timing signal is transmitted approximately at an upper portion of a tower.

54. The method of claim 45 wherein the stable timing signal is transmitted approximately at a base of a tower.

55. The method of claim 45 wherein the communication signal comprises a multipoint multichannel distribution service based communication signal.

56. The method of claim 45 wherein the receiving frequency of the signal comprises a high frequency and the lower frequency comprises an intermediate frequency.

57. A method for receiving a communication signal having a frequency comprising:

generating a stable timing signal;

receiving the stable timing signal at a local oscillator and using the stable timing signal as an input to generate a stabilized oscillator signal;

receiving the communication signal; and

using the stabilized oscillator signal to convert the frequency of the communication signal to a stable lower frequency.

58. The method of claim 57 further comprising converting the lower frequency signal to an optical signal and transmitting the optical signal over fiber optic cable.

59. The method of claim 58 further comprising receiving the optical signal over the fiber optic cable.

60. The method of claim 57 further comprising amplifying the communication signal.

61. The method of claim 57 wherein the stable timing signal comprises a global positioning system timing signal.

62. The method of claim 57 wherein the frequency of the communication signal comprises a high frequency and the lower frequency comprises an intermediate frequency.

63. A method for receiving a multipoint multichannel distribution service based communication signal having a frequency comprising:

receiving the communication signal;

converting the communication signal to an optical signal;

transmitting the optical signal over fiber optic cable; and

receiving the optical signal over the fiber optic cable.

64. The method of claim 63 further comprising:

generating a stable timing signal;

receiving the stable timing signal at a local oscillator and using the stable timing signal as an input to generate a stabilized oscillator signal; and

using the stabilized oscillator signal to convert the frequency of the communication signal to a stable lower frequency.

65. The method of claim 64 wherein the stable timing signal comprises a global positioning system based timing signal.

66. The method of claim 63 further comprising amplifying the communication signal.

67. A method for receiving a communication signal comprising:

receiving the signal at a receiving frequency;

generating a stable timing signal;

converting the receiving frequency of a communication signal to an intermediate frequency using the stable timing signal;

converting the intermediate frequency signal to an optical signal and transmitting the optical signal over fiber optic cable; and

receiving the optical signal over the fiber optic cable.

A'l cancel.

68. A method for receiving a communication signal comprising:

receiving the signal at a receiving frequency;

generating a stable timing signal; and

converting the receiving frequency of communication signal to a lower frequency using the stable timing signal.